EUROPE
Challenges for broadcasters
1. SUBTITLING IN EUROPE
   PUBLIC SERVICES ~ ACCESS SERVICES

2. TECHNICAL INNOVATIONS
   TELETEXT HAS BEEN HARD TO BEAT

3. BROADCASTER CHALLENGES
   COST AND ...

4. HISTORY LESSONS
   WHAT'S NEXT?
1. SUBTITLING IN EUROPE

PUBLIC SERVICES ~ ACCESS SERVICES
Europe
- 24 officially recognized languages
- > 60 indigenous regional and minority languages

Media
- Each country has at least one public service broadcaster
- Legal obligation to serve the whole community (no cherrypicking)
- Includes minorities & people with sensory disabilities (~10%)
On average public broadcasters deliver subtitles on over 66% of programmes

Half the broadcasters deliver over 80% of programmes with subtitles.

With some committed to subtitling 100% of all content, while other broadcasters have more limited resources.
SUBTITLING DRIVERS

Costs
Subtitling is cheaper than dubbing in terms of production costs.

Technology
Growth of subtitling is intrinsically linked to developments in technology; from closed subtitling with Teletext to voice recognition to reach 100% subtitling in some countries.

Policy
Countries may decide to require certain minimum levels of subtitling (typically much higher for public than for private media).
1. SUBTITLING IN EUROPE
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Although subtitling is the most common access service, technological choices among EBU Members vary widely.

75% of broadcasters surveyed use more than one technology/standard for subtitling.

As such, each type of subtitling technology/standard is used by around half of the broadcasters surveyed.

<table>
<thead>
<tr>
<th>Technology/standard used for subtitling</th>
<th>Number of broadcasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogue Teletext</td>
<td>22</td>
</tr>
<tr>
<td>DVB Teletext</td>
<td>18</td>
</tr>
<tr>
<td>DVB Subtitling</td>
<td>21</td>
</tr>
<tr>
<td>Web Streaming</td>
<td>15</td>
</tr>
</tbody>
</table>

Based on 25 broadcasters.
Simple systems stick around
• Teletext
• EBU STL

ONLINE has been the main game changer
• Mobile consumption of content without audio
• Being found: search engine optimization
• Social media: automated (SR-based) subtitling on YouTube, Facebook, ...
• Formats to 'author once – display anywhere' (MS, Apple, Netflix, ...)
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Is your organization facing obstacles to subtitling?

% of broadcasters facing obstacles
- Yes: 64%
- Not particularly: 36%

Most mentioned issues
- Cost: 12
- Quality: 19
- Technical: 5

Based on 33 broadcasters.
BROADCASTERS CHALLENGES 2/2

- **Financial**  Cuts within EBU Members organisations
- **Must carry**  Subtitles being distributed on all relevant networks
- **Prominence**  Subtitles being found on all relevant networks
- **Legislation**  The increase of quota and regulations
- **Guidelines**  Clear guidance on e.g. social media posting, contrast, fonts
- **Ageing**  Anticipating the impact of an ageing population
- **Staff**  There’s a lack of technicians/editors for subtitling (training skills)
- **Quality**  Maintaining/improving the quality of subtitles
TYPICAL QUESTIONS WE GET

• How do I interpret STL files with ... ?
• Which vendors support ... ?
• What format should I use for ... ?
• Who can help me develop my web-platform subtitling workflow?
• When will there be a an EBU-TT to SDI mapping ?
• (Are the Song Contest votes rigged ?)
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A BIT OF HISTORY

EBU I 044 (2004)

• Spotted W3C Timed Text work
• Saw a chance to 'replace' STL

We were one of the first...

EBU Technical - Information 144-2004
EBU report on Access Services - includes recommendations

Importing subtext from Newsroom systems
There are technical solutions on the market for importing script dialogue directly from the newsroom system and aligning it with the appropriate video content. However, the duration of the subtitles does not always allow for enough reading time, and the language in the scripts is meant to serve as a well-tuned spoken language, and is therefore not always well suited for reading. Also, live reports and other non-scripted items cannot be captioned this way. Nevertheless, scripts imported into the subtitling system are a very useful tool for facilitating the subscriber's work.

Reuse of subtitles for other platforms
SBT is currently investigating the possibility to re-use news subtext as plain text on additional platforms, on the web and as Teletext pages. News agency material and newsroom scripts are normally edited a second time, before being published on the web and on Teletext pages. Since the text already contains the same content and presenting it as semifinal subtitling, it might be a good idea to use the text created by the subtitlers, formatted into running text, for the web and on Teletext as well ("Nur ohne zu viel, publizieren wiederholt"). Such a practice would not require the subtitling process, but would make the whole newsroom workflow more efficient. Live subtitling could be presented this way as well, if the subtitling equipment allows for saving, but the output then of course be carefully re-edited.

Since formatted subtitles cannot be seen as an access service by themselves, it might be appropriate to have a journalist do the editing or to revise the text before it is published on additional platforms.

2.2.5.1 New subtitle file formats
Several organizations are currently working on the support of subtitling in new file formats. These include ProMPEG, SMPTE and W3C. The work is partly overlapping and some activities may decide to change their scope / aims, but a brief classification of the current situation is:

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>W3C Timed Text</td>
<td>An extensive authoring and web format for subtitling and related purposes</td>
</tr>
<tr>
<td>SMPTE D27, D28</td>
<td>Focusing on the distribution of subtitled information (in XML) in many files</td>
</tr>
<tr>
<td>SMPTE DC28</td>
<td>Working on a subtitling format for digital cinema</td>
</tr>
<tr>
<td>ProMPEG/SMPTE</td>
<td>Working on generalised exchange of XML in XML-32</td>
</tr>
<tr>
<td>AAF Forum</td>
<td>Working on support for subtitling in AAF-2</td>
</tr>
</tbody>
</table>

The EBU Subtitling Data Exchange Format (11) in the longer term will probably be replaced by some or all of the above.

PIAS has welcomed the work of W3C on Timed Text and has input general requirements on access services to ProMPEG and SMPTE; with the aim that these will lead to the inclusion of adequate functionality in the future formats and consider that help migration from current formats is useful.

2.2.5.3 Remote subtitling & speech recognition
The BBC has started to make extensive use of speech recognition to author live subtitles. Suitable trained subtitlers listen to the programme and simultaneously re-speak the words to be subtitled.
..BUT NOT THE ONLY ONES
WHAT DID WE LEARN?

Good idea in 2004 to work on W3C Timed Text, but
• Too early
• Started at the wrong end: production vs. distribution

Easy to get many solutions
• Everybody starts from his own 'corner'

Two worlds are meeting:
• Hardware stability vs. software incremental innovation
• Convergence is possible and happening! (IMSC)

There is a gap in the perception of subtitling complexity
WHERE FROM HERE?

Good uptake of TTML-based subtitles
- DVB DASH, DVB TTML Subtitling, Freeview, HbbTV, ...

The next challenge will be getting rid of Teletext in the chain
- But broadcasters will not change workflows unless they see a strong need
- There is lots of vendor lock-in
- Legacy equipment is becoming harder to get support for

We should shift focus from standardisation to practical Members assistance*

* Except for EBU-TT Live carriage over IP (SMPTE 2110)
1. KISS !!!

2. Test every feature in code and with at least one real-world user

3. Align new work internationally from the start -> roadmap?
   -> the global group of experts is very, very small!
DRIVING INNOVATION...

Transformation  
- Understand incoming STL files

Localisation  
- Different language subtitles

Innovation  
- Sponsored open source TTML work

Harmonization  
- Embraced IMF with IMSC subtitles

Distribution of TimedText Sources (april 2016)

medium.com/netflix-techblog/a-scalable-system-for-ingestion-and-delivery-of-timed-text-6f4287a8a600
DRIVING INNOVATION

- Transformation
- Understanding
- Localisation
- Sponsored open source TTML work
- Harmonisation
- Embraced IMF with IMF

The streaming platform has revolutionised the way we watch television but now faces what could be its biggest challenge yet — convincing billions to embrace dubbed dramas.

Dubbing is generally associated with clumsy, advert yokescopes. But Netflix flunks Dubbing is generally associated with clumsy, advert yokescopes. But Netflix flunks

Netflix dubbing has viewers lost for

Innovation
- Understand
- Different language subtitles
- Understand

Harmonisation
- Embraced IMF with IMF

Localisation
- Different language subtitles

Understanding
- Embraced IMF with IMF

Harmonisation
- Embraced IMF with IMF

Innovation
- Understand
- Different language subtitles
- Understand

DRIVING INNOVATION...

medium.com/netflix-techlog/scalable-system-for-ingestion-and-delivery-of-timed-text-614897a8a600
See you at Dubtech1 next year...
REFERENCES

EBU Access Services Experts group
https://www.ebu.ch/groups/tv/access-services-experts

Access Services Pan European Survey

EBU Timed Text group & technical specs
tech.ebu.ch/subtitling
THANK YOU!